

Table S1 Dry matter distribution amount and proportion of each organ in wheat maturity

Year	Variety	Treatment	Upper three leaves		Other leaves		Stem		Grain		Glume + rachis		Remaining tillers
			DMDA (g)	DMDP (%)	DMDA (g)	DMDP (%)	DMDA (g)	DMDP (%)	DMDA (g)	DMDP (%)	DMDA (g)	DMDP (%)	DMDA (g)
2020-2021	Jimai22	CK	0.209a	7.8b	0.073b	2.7b	0.868b	32.4c	1.24c	46.2abc	0.290bc	10.9ab	0.113ab
		DF2	0.162c	5.5c	0.050def	1.7e	0.887b	30.2d	1.42b	48.2a	0.423a	14.4a	0.082bcd
		DF3	0.194abc	5.8c	0.061bcd	1.8e	1.040a	30.7cd	1.66a	49.0a	0.428a	12.7ab	0.096abc
		DF4	0.207ab	5.9c	0.066bc	1.8e	1.114a	31.5cd	1.75a	49.4a	0.401ab	11.4ab	0.065bcde
	Jimai20	CK	0.223a	9.0b	0.085a	3.4a	0.924b	37.5a	1.02d	41.3d	0.216c	8.8b	0.102ab
		DF2	0.156c	5.4c	0.068bc	2.3bcd	1.040a	36.0ab	1.24c	42.9bcd	0.389ab	13.4ab	0.150a
		DF3	0.166bc	5.6c	0.071b	2.4bc	1.049a	35.3b	1.24c	41.9cd	0.441a	14.8a	0.098abc
		DF4	0.188abc	6.2c	0.073b	2.4bc	1.102a	36.0ab	1.25c	40.7d	0.451a	14.8a	0.072bcde
	Shiluan02-1	CK	0.210a	11.9a	0.042f	2.4bc	0.539d	30.2d	0.77e	42.8bcd	0.228c	12.8ab	0.029de
		DF2	0.191abc	8.0b	0.046ef	1.9de	0.733c	30.4cd	1.19c	49.3a	0.251c	10.4ab	0.062bcde
		DF3	0.204ab	8.1b	0.050def	2.0cde	0.765c	30.5cd	1.21c	48.1a	0.285bc	11.3ab	0.039cde
		DF4	0.227a	8.7b	0.055cde	2.1cde	0.783c	30.0d	1.22c	46.7ab	0.329abc	12.6ab	0.014e
	Variety	*	*	**	**	**	**	**	**	**	**	ns	
	Treatment	**	**	**	**	**	**	ns	**	*	**	ns	
	Variety*Treatment	ns	ns	ns	*	ns	**	ns	**	ns	ns	ns	
2021-2022	Jimai22	CK	0.183a	6.7b	0.052cde	1.9bc	0.761b	27.7a	1.41de	51.6a	0.341abc	12.1a	0.033cd
		DF2	0.139d	4.6f	0.047de	1.6c	0.762b	25.3abc	1.60bc	52.8a	0.459ab	15.2a	0.071ab
		DF3	0.149cd	4.8ef	0.056bcde	1.8bc	0.807ab	25.8ab	1.66ab	52.9a	0.462ab	14.8a	0.040bcd
		DF4	0.165b	4.9ef	0.066abcd	1.9bc	0.891a	26.2ab	1.80a	53.1a	0.473ab	13.9a	0.024d

2020-2022	Jimai20	CK	0.165b	6.3b	0.072ab	2.8a	0.599de	22.9c	1.42de	54.4a	0.354abc	13.6a	0.039bcd
		DF2	0.137d	5.0ef	0.060abcde	2.2abc	0.644cde	23.6bc	1.54bcd	56.3a	0.352abc	12.9a	0.078a
		DF3	0.155bc	5.2de	0.071abc	2.4ab	0.726bc	24.3bc	1.64b	54.8a	0.400abc	13.3a	0.038cd
		DF4	0.165b	5.2de	0.077a	2.4ab	0.764b	24.0bc	1.68ab	52.7a	0.501a	15.7a	0.038cd
	Shiluan02-1	CK	0.146cd	7.6a	0.043e	2.2abc	0.502f	26.2ab	0.99f	51.5a	0.238c	12.5a	0.045bcd
		DF2	0.123e	5.2de	0.041e	1.8bc	0.554ef	23.7bc	1.35e	57.9a	0.270bc	11.5a	0.065abc
		DF3	0.145cd	5.7c	0.051de	2.0bc	0.605de	23.9bc	1.40de	55.4a	0.327abc	12.9a	0.047bcd
		DF4	0.154bc	5.7cd	0.056bcde	2.1bc	0.670cd	24.7bc	1.47cde	54.1a	0.365abc	13.4a	0.043bcd
	Variety		**	**	**	**	**	**	**	ns	*	ns	ns
	Treatment		**	**	*	ns	**	ns	**	ns	ns	ns	**
	Variety*Treatment		*	*	ns	ns	ns	ns	ns	ns	ns	ns	ns
	Year*Variety		**	**	ns	ns	ns	**	**	**	ns	ns	**
	Year*Treatment		ns	*	ns	ns	*	ns	ns	ns	ns	ns	ns
	Variety*Treatment		ns	ns	ns	ns	ns	ns	**	ns	ns	ns	ns
	Year*Variety*Treatment		ns	ns	ns	**	ns	ns	ns	ns	ns	ns	ns

Note: DMDA means the dry matter distribution amount (the weight of the organs of a single plant of wheat); DMDP means the dry matter distribution proportion (the proportion of the organ weight to the weight of a single plant of wheat).

Table S2 Nitrogen distribution amount and proportion in wheat organs

Year	Variety	Treatment	Upper three leaves		Other leaves		Stem		Grain		glume + rachis		remaining
			NDA (μg)	NDP (%)	NDA (μg)	NDP (%)	NDA (μg)	NDP (%)	NDA (μg)	NDP (%)	NDA (μg)	NDP (%)	tillers

													NDA (μg)
2020-2021	Jimai22	CK	4.35b	11.3b	0.96b	2.5b	3.06a	7.8ab	28.8ef	74.0c	1.74cdef	4.5bc	1.44ab
		DF2	3.29b	7.7cd	0.84bc	2.0bcde	3.31a	7.8ab	32.3de	75.5bc	2.95a	7.0a	1.01bcd
		DF3	3.42b	6.7cd	1.01ab	2.0bcde	3.85a	7.6ab	39.8ab	78.5abc	2.66ab	5.2abc	1.16abcd
		DF4	3.49b	6.5cde	1.07ab	2.0bcde	3.98a	7.4ab	43.2a	79.7ab	2.48abc	4.6bc	0.78bcde
	Jimai20	CK	3.50b	5.1de	1.23a	1.7cde	4.30a	10.3a	25.7fg	78.9ab	1.12f	3.1c	1.32abc
		DF2	1.34c	3.4e	0.65c	1.7cde	4.12a	10.4a	31.2de	79.2ab	2.12bcde	5.4ab	1.76a
		DF3	1.38c	3.4e	0.62c	1.5de	3.86a	9.5ab	32.3de	79.7ab	2.38abcd	5.9ab	0.95bcd
		DF4	1.40c	3.4e	0.62c	1.5e	3.70a	8.9ab	33.4cd	80.4a	2.40abcd	5.8ab	0.69cde
	Shiluan02-1	CK	5.66a	17.3a	0.98b	3.0a	3.12a	9.6ab	21.8g	65.8d	1.43ef	4.4bc	0.47de
		DF2	4.08b	9.3bc	0.85bc	1.9bcde	3.53a	8.0ab	34.1cd	77.1abc	1.62def	3.7bc	0.91bcde
		DF3	4.19b	9.3bc	0.92b	2.0bcd	3.27a	7.3ab	34.9cd	77.5abc	1.80cdef	4.0bc	0.56de
		DF4	4.48b	9.4bc	1.00ab	2.1bc	3.23a	6.8b	36.8bc	77.4abc	2.02bcde	4.3bc	0.20e
Variety		**	**	**	**	**	ns	*	**	**	**	*	
Treatment		**	**	**	**	**	ns	ns	**	**	**	ns	
Variety*Treatment		ns	ns	*	**	ns	ns	ns	**	**	ns	ns	
2021-2022	Jimai22	CK	1.64a	4.4b	0.43bc	1.2bc	2.30abc	6.2b	31.5e	84.8ab	1.28ab	3.4a	0.37cde
		DF2	1.04c	2.5d	0.44bc	1.1bc	2.11abc	5.2bc	35.8cd	86.9ab	1.77ab	4.3a	0.83a
		DF3	1.05c	2.5d	0.47bc	1.1bc	1.96c	4.6c	37.3abcd	87.6ab	1.76ab	4.2a	0.44cde
		DF4	1.11c	2.4d	0.48abc	1.0bc	2.14abc	4.6c	41.2a	88.2a	1.80ab	3.9a	0.20de
	Jimai20	CK	1.29b	3.5c	0.65a	1.8a	1.90c	5.2bc	31.4e	85.3ab	1.55ab	4.2a	0.18e
		DF2	1.05c	2.6d	0.55abc	1.4b	2.02bc	5.0bc	34.7cde	85.7ab	2.18a	5.4a	0.62abc
		DF3	0.98c	2.2d	0.56abc	1.3bc	2.04bc	4.7c	38.3abcd	87.5ab	1.84ab	4.3a	0.27de
		DF4	0.96c	2.1d	0.57ab	1.2bc	2.13abc	4.6c	40.2ab	87.5ab	2.10a	4.6a	0.28de

Shiluan02-1	CK	1.64a	5.4a	0.57abc	1.9a	2.44ab	8.0a	24.9f	81.4c	1.03b	3.4a	0.49bcd
	DF2	1.64a	4.1b	0.58ab	1.4b	2.50ab	6.3b	34.1de	84.6b	1.44ab	3.6a	0.74ab
	DF3	1.04c	2.5d	0.44bc	1.1bc	2.32abc	5.6bc	36.4bcd	87.2ab	1.53ab	3.7a	0.33cde
	DF4	0.93c	2.1d	0.40c	0.9c	2.54a	5.8bc	38.8abc	87.8ab	1.52ab	3.4a	0.29de
Variety		**	**	**	**	**	**	**	ns	*	ns	ns
Treatment		**	**	ns	**	ns	**	**	**	ns	ns	**
Variety*Treatment		**	**	ns	*	ns	ns	ns	ns	ns	ns	ns
2020-2022	Year*Variety	**	**	**	**	**	**	**	**	*	ns	**
	Year*Treatment	**	**	*	ns	ns	ns	ns	ns	ns	ns	ns
	Variety*Treatment	ns	**	**	*	ns	ns	**	**	ns	ns	ns
	Year*Variety*Treatment	ns	ns	**	ns	ns	ns	ns	ns	ns	ns	ns

Note: NDA means the nitrogen distribution amount (the nitrogen weight of the organs of a single plant of wheat); NDP means the dry nitrogen distribution proportion (the nitrogen proportion of the organ nitrogen weight to a single plant nitrogen weight of wheat).